1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

[p. 13a]

197 Probably no group of Tarascans has great difficulty in understanding any other group. As Tarascan has not been subjected to intensive grammatical analysis, thus far no affiliations for the language have been seriously proposed.

105 To summarize the discussion, the Tarascans appear to be fairly typical of the plateau Indians of Central Mexico in type, but they speak a unique language. Both anciently and today

[text continues on top of p. 13b]

TECHNOLOGY

EXPLOITATIVE ACTIVITIES

128 In this section are described the techniques of the Cherán Tarascans for the exploitation of the environment. With a few exceptions, manufacturing processes, the uses to which the products are put, and the economic system into which they enter are discussed in later sections.

COLLECTING

222 *Plants.*—No food plants are collected regularly. Recourse is sometimes had to edible greens in times of starvation or as an occasional means of bringing variety into the diet. Most useful plants, except medicinal herbs, exist in the town in virtually a semidomesticated state. This is particularly true of the [263] most commonly used plants such as kulántro (*cilantro*),[2] the most frequently employed herb for flavoring food. Similarly, *manzanillo,* [278] probably the most generally used medicinal herb, is to be found in every garden. Discussion of these plants can therefore best be deferred to the discussions of medicine and the house gardens.

A small wild maguey growing in the mountains and in the *malpais* (lava flows) is col- [252] lected from November to May. The heart is roasted in pit ovens and sold.

222 One minor commercial enterprise, formerly
412 of some importance, is collecting *raiz de paja,* the roots of a coarse grass. The roots are cut off and carried to Cherán, where they are carefully laid out in rows on sunny, dry days. After drying, they are tied in bundles for sale

[104]

[2] Tarascan words are in Roman and Spanish words are in italic unless they are in frequent English usage. Spanish words with special local meanings are in quotation marks.

[text continues on middle of p. 13b]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
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105 they occupy a temperate to cold environment, which offers rich rewards to a farming people but which otherwise possesses relatively meager resources. In prehistoric times the Tarascans were able to utilize the present area as a base to develop a modest empire. In historic times, their empire gone, they still have maintained a degree of individuality in the face of an encroaching modern civilization.

TECHNOLOGY

222 for the manufacture of brushes. The entire
412 family may work at this task. While some collecting of *raiz de paja* still is carried on, the market collapsed badly with the outbreak of war in 1939, depriving a number of families of an important part of their livelihood. In good times, the roots sold at 30 to 35 centavos a kilo.[3]

222 A root, čalankóte, is used for washing wool-
388 ens and is considered superior to soap.[4] It is dug in the barrancas, both for use and for sale. In Angáhuan, Rendón found seeds of a bush called kómerame used for the same purpose, as well as leaves called apúpen and roots of the plant pačánkua.

Honey gathering.—The one collecting tech-
222 nique still important in Cherán is gathering
237 wild honey. Not only are there still specialists who spend many weeks at the occupation during proper seasons of the year, but there are numerous ceremonial associations. The *panaleros* or honey collectors are divided into two
[776] groups, each with an image and a *mayordomía* of San Anselmo, patron saint of the group. There are also important ceremonial activities on the part of the *panaleros* in connection with the fiesta of Corpus Christi in June. The various ceremonies are described later.

Most gathering of wild honey takes place in the regions of old lava flows or *malpais*. The *malpaises* of Turicuaro and Tanaco are considered among the best today for honey gather-

[3] In La Cañada, wild gourds, *guajes* (arumbas), are collected and sold in the Chilchota market. The leaf of a wild bay (?), bayo (hóngakua), is used in washing clothes by La Cañada Tarascans, who claim the plant is eaten by the Sierra Tarascans. Soaproot, *amole*, is used in La Cañada for bathing.

[4] The orthography used for native words is that recommended by *Proyecto Tarasco* and the *Consejo de Lenguas Indígenas* (Swadesh, 1946).

[104]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
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222 237 ing. The combs found here are round and hang from tree branches. They are found by observing the flight of bees; this requires good eyesight and is difficult on cloudy days. The clear weather of late spring and fall consequently is the time of greatest activity. From December until warm weather begins, the honey is sugared and cannot be extracted from the comb.

Several varieties of bees are sought. The combs found near Cherán are white and have little honey, most of the comb being occupied by brood. In the region near Tanaco the combs are red, small, and almost completely full of honey, with little brood. Other combs are described as being occupied by bees that are *muy bravo*. Only this type of bee requires the use of smoke to secure the honey. At times this bee attacks passers-by and follows until the victim covers himself with straw. Lemon [752] juice is used to alleviate the stings. In addition to these types, wild European bees are sometimes found in hollow trees.

Once a comb is located, the *panalero* usually climbs the tree and knocks the comb down. If [481] the tree is large, he cuts notches in the trunk [412] with a small special-type ax, tying himself with a riata or a length of rope while he chops. The rope is not tied, but passes around the tree trunk and the two ends are held in the hands. The *panalero* holds the rope tightly while he edges up the tree. Then, with a skillful motion, he throws the loop of rope higher up the tree trunk. Once the comb is reached, the *panalero* covers his face and hands with a blanket and taps the comb until the bees leave. The procedures are regarded as highly dangerous. *Panaleros* are always careful to take a good rest before climbing a tree. They are also particularly attentive to their saint, San Anselmo, who is believed to protect them. The danger of the occupation is increased by the fact that the *panalero* always works alone and in case of accident could expect no rescue.

Honeycombs are now said to be so scarce that it is hardly worth while hunting them. Nevertheless, one *panalero* mentioned securing 19 combs on one trip which he sold for 9 pesos. Sometimes the combs are sold as collected. At other times the honey is extracted by squeezing the comb in an *ayate* or carrying net. If very

1: Beals E-5 (1940-1941) 1946 NU34 Tarasco NU34
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FIGURE 1.—Woodworking implements. *a*, Typical ax head, weighing 6 to 8 pounds. *b*, Same as *a*, with handle; total length about 3½ feet. *c*, Short-handled adz (*azgüiru*). *d*, Saw used for cutting planks (*k'uski erikiorakua*), about 6 feet long; the lower handle usually is of metal and clamps over the end of the saw, engaging the saw teeth to hold it in place. *e*, Long-handled adz. *f*, Method of using long-handled adz to dress beams or planks. *g*, Logging saw, "swedish," used to cut felled timber into desired lengths.

[p. 16]

243 While crops are small, posts are placed in the fields to provide perching places for hawks.

Worms may damage small plants to the point that reseeding is necessary, especially if there are long periods of cloudy weather without rain. Worms also damage about 35 percent of the ears. Deer damage crops badly only in isolated mountain fields. Badgers in some places are serious pests. The only remedy is to attempt to shoot the animals. Birds do little damage. Some maize is attacked by a fun- [262] gus. The fungus is eaten, but it is not sold or prized as a delicacy as is the case in some parts of Mexico.

243 672 685 Trespass by domestic animals and theft must be guarded against. Sometimes isolated fields are completely stripped if not watched. Stray animals caught damaging corn are taken to the *municipio* and held in jail until the owner pays for the damage.

243 [132] Unseasonal frost often damages corn, particularly late plantings and in fields at high altitudes. In 1940, frost, heavy enough to damage some fields, occurred on September 29.

When maize is about 1 foot high it is cultivated (*"escarda"* also *"trozando"*) by running the plow between the rows, throwing dirt toward the plants. This is done a second time when the plants are about 18 inches tall. If it is delayed too long, the roots may be cut, the maize leaves will yellow at the tip, and no ears will form.

When the maize is in tassel, after the rainy season is well underway, the fields are weeded [412] *"chaponeado."* This is done by hand with a short machete, called *"os,"* with a sharp curve at the point. Also, earth is piled around such plants as were not sufficiently covered by the cultivation. If the weeds are bad, a second weeding is sometimes done, but not often. If weeding is omitted, weeds climb high up the stalks and the crop suffers considerably. The weeds removed are piled up beside the fields and are not used for feed or fertilizer.

243 221 674 As soon as grain is well formed on the ears, some maize is used for food, usually roasted. At this time, also, guards must be set in the fields, not only to keep animals out, but to prevent theft. Whole families may move to temporary field shelters at this time and remain until the harvest. In the "plains," usually

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.346]

939 Both men had arrived with the highway construction crews; neither was making what he regarded as a satisfactory living and both hoped to leave.

Tile and brick are made in an old chapel and surrounding grounds, formerly part of the *curato* or curacy. Ten percent of the finished [427] tile or brick is given to the *municipio* as rent [632] for the buildings and for the right to dig clay on public lands.

A grayish clay is brought to the factory in sacks by mules. It is mixed with water and manure in a board-lined pit in the patio, where it is turned with spades and hoes and trodden with bare feet. The mixed clay is pressed into a trapezoidal wooden form laid flat on a table (fig. 5). The top is smoothed carefully with the wet hand. The clay is then slipped off the table onto a wooden form resembling half of a truncated cone, but with a handle. After a few moments, the clay, now in the shape of a tile, is slipped off on the floor. When fairly well dried, the tile is moved outdoors for further drying.

Bricks are made in the same fashion but with a different wooden form. Both brick and tile are fired in a wood-fired kiln in the patio. The wood is cut and hauled by the brickmakers and tilemakers. The time required to make a thousand brick or tile is about 9 days, as follows:

	Days
Getting and mixing clay	2
Cutting and hauling wood	1
Shaping 1,000 brick or tile	5
Loading kiln	1
Total	9

TEXTILES

285 *Mats.*—Most sleeping mats used in Cherán are imported, but at least three women make them locally. [478] The mats are made of tules imported on burros from Erongaricuaro on Lake Pátzcuaro. The mats are made in twilled technique, usually treating two tules as a single weaving element. The only tool observed was [412] a stone fist hatchet for severing tules.

294 *Hat making.*—About four men manufacture men's hats of palm straw braid, although pro- 439 duction does not meet the local demand. The activity involves complex trading arrangements, for palms do not grow in Tarascan terri-

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

592 Table
352 3 chairs (usually small low style)
415 Machete
½ dozen spoons
2 table forks (rare)
1 table knife (rare)
1 can opener (rare)

Objects found in a lot:

412 Pear picker (if there is fruit on the lot)
592 Hollowed logs for water and feeding pigs
Smooth rock and wooden paddle for washing clothes
Wooden pitchfork
Wooden hook
Carrying crate with tumpline (occasional)
Frame for carrying water *ollas* on donkeyback (occasional)
Clay oven with shovel and broom (occasional)
Hoe

In addition to these items there are the tools of work to be acquired. A farmer needs a plow, yoke, goad, oxen, carrying nets, weeding machete, and perhaps other items. A forest worker needs an ax, a hafted blade for splitting shakes, a wooden mallet, oak wedges, a 2-man crosscut saw about 8 feet long, and an oil can (to oil the saw). A mason will need a trowel, hammer, sledge hammer, and string for guide and plumb lines. A traveling merchant will need burros, pack saddles, and halters.

291 Clothing must also be secured. The man will own *huaraches*, or sandals, two or three pairs of *calzones*, or cotton trousers, often a pair of overalls, a pair of shoes, shirts, knitted cotton undershirts, a blanket or poncho, belt, straw hat, straw or rubber raincoat, a rubber cover for the hat, and a Catholic amulet. In addition, many will own a jacket or coat and pair of trousers of "citified" style to wear when going to Uruapan.

The wife will need a skirt, petticoat, blouse, sashes, jacket, shawl or *rebozo*, bead ornaments, and shoes for special occasions. For working about the house she may have a few cheap cotton dresses of Mestizo style.

As children arrive, clothing must also be provided. Boys usually own *calzones* or cotton trousers with a strap fastening, straw hat, small blanket, shirt, sandals, and perhaps an amulet. Girls will have skirt, petticoat, blouse, jacket, sashes, *rebozo*, and sometimes shoes.

Not everyone will have the above things, but some will have more. The lists given are

3:Beals, Carrasco & McCorkle E-5 (1940-1942) 1944
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BUILDING MATERIALS
AND THEIR SOURCES
WOOD

313 All wooden materials used in Cherán are pro-
656 duced from local timber. The forests stand al-
most entirely on public lands considered to belong
[423] to the town. Formerly, exploitation of any sort
was open to all residents who had paid a small fee
to an administrative committee. The fee was
used to pay federal taxes on the land. Recently,
the Department of Forestry of the Federal Gov-
ernment has restricted exploitation of the forests
for any purpose other than the collection of fire-
wood to persons having permits. In Cherán this
[474] apparently will mean that persons wishing to cut
lumber or shakes (or make charcoal) must join a
local cooperative, for the Department of Forestry
has refused to give permits to any other group
or to individuals.

313 In general, the cutting of lumber is done by
335 specialists. Men who have no land or inadequate
land or, in some cases, men who prefer the activ-
ity, cut most of the timber and shape it into planks
and beams. Shake making is even more special-
ized, and men who make shakes may do nothing
else except look after whatever farm lands they
may own. Only a very poor person would attempt
to cut the planks and beams needed for a house if
he were not a specialist, but anyone might cut
poles and stringers used in the roof construction.

313 Woods used in house construction are pine and
137 fir. Pine is most used and two types are dis-
tinguished, red (iarini), the heartwood of large
trees, and white, the sapwood of large trees or
wood from young trees. From these woods are
made shakes, *tejamanil*, "*vigas*" (any piece over
2 inches (5 cm.) in thickness), and planks, or
tablas.[1]

313 Trees are felled and trimmed with the ax. To
412 cut trees in sections, a two-handled saw is used
called a "*sardina*." Splitting is done with oak
wedges and an oak maul. Large pieces produced in
this fashion are sometimes dressed down with ax or
adze. Planks, or *tablas*, are sawed with a long two-
handled saw (k'eréri arákutarakua). Logs des-
tined for planks are squared with the ax, marked

[1] The measure of length is the *vara*, which is divided in fourths or thirds. Each fourth contains eight English inches (20 cm.); so the *vara* equals 32 inches, or 81.28 cm. Fourths and inches are measured usually with the hand and fingers, but the span is also used.

[p. 9a]

BUILDING MATERIALS
AND THEIR SOURCES

313 by a chalk line, and then placed on a platform of
412 poles, sometimes with a pit underneath.[2]

Shakes, *tejamanil*, are made from both pine and fir. Fir shakes are preferred as they last longer despite breaking more easily. Trees used to make *tejamanil* must be straight-grained. The trunk is cut in sections with saw or ax; each section is then split lengthwise with wedges to produce a number of pieces, usually 8, each 4 fingers wide at the bark edge. These pieces are then split into 16 shakes. A special machete is used to start the split, which is then completed with a thin metal or wooden tool.

313 Several types of shakes are made. In Anga-
438 huan, a shake 5 *cuartas* (40 in.) long and 7 inches wide is made to sell in Zamora and is called Zamorano. One shake 4 *cuartas* (32 in.) in length by 4 inches in width, called "little shake" (tasámbani sapírati), is sold in Uruapan, while one called "long shake" (tasámbani iórati), 6 *cuartas* (48 in.) by 1 *quarta* (8 in.), is used in the town itself. Cherán, on the other hand, uses a shake called "thick shake" (tasámani tiápiti), 5 *cuartas* (40 in.) in length. This is the size used in most Tarascan towns. Shakes are occasionally sold by the hundred, but the most common unit is a bundle of 400 (irépita).

Master carpenters may use an elaborate variety
412 of modern tools for woodworking and house building. However, everything may be done in woodworking with ax, adze, saw, drill, chisel, and wooden wedges, and many persons work only with these tools.

ADOBE BRICKS

339 Adobe bricks are usually made from suitable earth near the village by specialists. The earth is mixed with manure and water to the proper consistency, then shaped in wooden forms. Two sizes of brick are made, one 3 spans long, one 2½ spans long. Adobes are laid by a mason in a mortar of adobe and manure. Because of the moist
333 climate, adobe walls always rest on a foundation of stone masonry laid in adobe mortar; the foundation may extend as much as half a meter (20 in.) below the ground surface.

[2] A fuller description of lumbering techniques will be given in a general monograph on Cherán in preparation.

3: Beals, Carrasco & McCorkle E-5 (1940-1942)1944 NU34 Tarasco NU34
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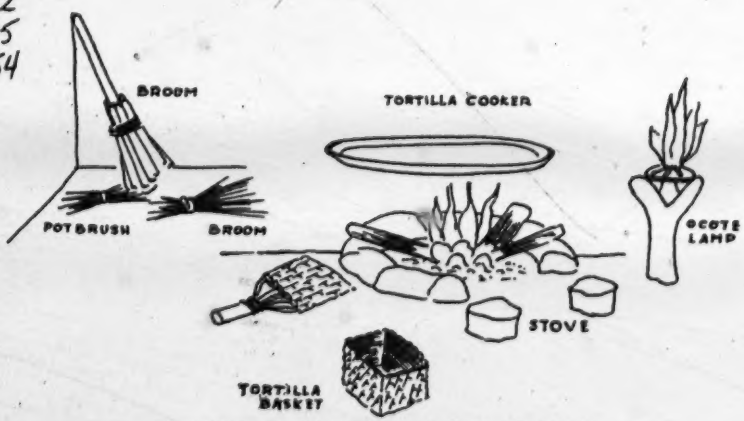

FIGURE 16.—Utensils and furnishings commonly found in a Cherán kitchen.

[p. 22C]

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[P. 36-a] Sierra

243 for most of the Sierra. Here, therefore, only the major processes and regional differences will be highlighted.

Ground preparation and planting.—On the level basin floors and lower hill slopes, land is prepared for maize planting with the plow (*arado*). [412] [177] The ancient Egyptian two-piece affair drawn by a pair of oxen is the most common type of plow used by the Tarascans and by most of the present-day farmers of Mexico. (See Beals, 1946, p. 22, for illustration of this primitive plow.) Introduced into the Tarascan area in the 1520's or 1530's, this instrument was readily taken over by the native farmers. Adaptation to the plow was possibly slow in the Sierra, where most of the aboriginal agriculture was on steep slopes; but at least by 1624 the farmers of Cherán were cultivating the lower slopes near the town with the *arado* (AGN Tierras, vol. 83, exped. 13).

Prior to the introduction of the plow the flattish basin plains of the Sierra apparently were infrequently cultivated. Early accounts of Tarascan farming emphasize the importance of *desmonte* agriculture on the steep slopes. A report of 1599 describing the pueblo of Corundapan (now nonexistent) in the Sierra near Tingambato, states that the natives had no lands in adjacent basin plains, but, as was customary among Tarascan peoples, planted on the slopes in order to obviate frost hazard.[85] The probable occurrence of a grass sod in the basin plains may also have discouraged their cultivation. A description (1603) of the lands of Capacuaro mentions the large number of *desmontes*, but points out the possibility of cultivating an unused plain nearby, which was relatively free of shrubs and trees.[86] Such areas, though difficult to till with the aboriginal digging stick, were readily adapted to plow culture.

243 412 The plow now used in Tarasca probably has not changed in form since the early 16th century. For most plowing the straight iron plow tip (8 to 10 in. long, 3 in. wide), called the *reja*, is fastened

[85] AGN Tierras, vol. 64, exped. 2. ". . . no tienen tierras en las lomas y asi siembran en el monte como lo acostumbra toda la nacion tarasca en lo que es tierra frio por abrigar sus sementeras de los yelos . . . ." This statement is from one of the field reports which accompanied recommendations for the village congregations at the end of the 16th century. Obviously, owing to air drainage, frost hazards are less on lower slopes than on the basin flats, a fact keenly recognized by modern Tarascan farmers.

[86] AGN Congregaciones, ff. 147–15. Fray Diego Muñiz describes the plain as " . . . llamada . . . la mejor parte rasa y descombrada, fertil y facil de labrar [with the plow, of course] . . . apta de mucha semilla y cosecha . . . "

243 to the lower point of the frame. This instrument
412 stirs, rather than turns, the soil to a depth of less than 6 inches. Within the last 50 years many Tarascans have used a small adaptation of the North European moldboard plowshare for breaking new land and for first and second plowings. For planting and cultivating maize the moldboard (which is slipped over the end of the plow frame) is replaced by the *reja*. As mentioned above, in recent years the Mexican government has supplied a number of American steel plows to various
243 Tarascan municipios.

[231] Oxen are used almost exclusively to pull the plow, to which they are hitched by the horn yoke. Mules and horses sometimes supplement oxen during maize cultivation, when the work must be done quickly. Before being planted, maize fields are plowed, this operation being called *barbecho*. In the Sierra the *humedad* maize lands in the plains are plowed twice, once in late summer and again in late winter. Temporal maize fields located outside the Sierra undergo only one plowing—in late May or early June, immediately before the rains. For planting, rows are formed with the plow equipped with the straight *reja*. Usually rows follow the contour on slopes. Two to three seeds are dropped at 1-foot intervals into the furrow by a boy following the plow and driver. Often the boy covers the seed with earth to a depth of 3 or 4 inches with a sweep of his foot. If animals are available, the first plow is followed by a second, which covers the grain by throwing earth from the interfurrow ridge (pl. 5). This plow is often equipped with a horizontal beam (*orejera*), placed back of the *reja*, which rakes earth into the furrow. Maize is normally cultivated (earth thrown toward the plant and weeds eradicated) twice with the plow, once when the plant is about 1½ feet high (*escarda*) and again when the plant begins to tassel (*segunda*). There-
[412] after, fields are weeded by hand or with the hoe. Zacatón (a form of Johnson grass) is cut with the *juds*, a machetelike sickle, similar to the *garabato* of the *tierra caliente*.[83]

412 Several forms of the pre-Columbian planting
243 stick are still used in the maize fields of the Sierra (fig. 3). These instruments, called meiánta-

[TEXT CONTINUES TOP OF P. 358 - ANALYST]

[104] [83] The Sierra Tarascans use many terms to describe maize in its various stages of growth. When the plant is about 4 inches high (2 weeks after planting), it is called pirán; at 1½ feet (ready for the *escarda*), kámi or tapíta; when in tassel, pípita; when ears are in hair, tusíni or tusípiti.

[P. 37]

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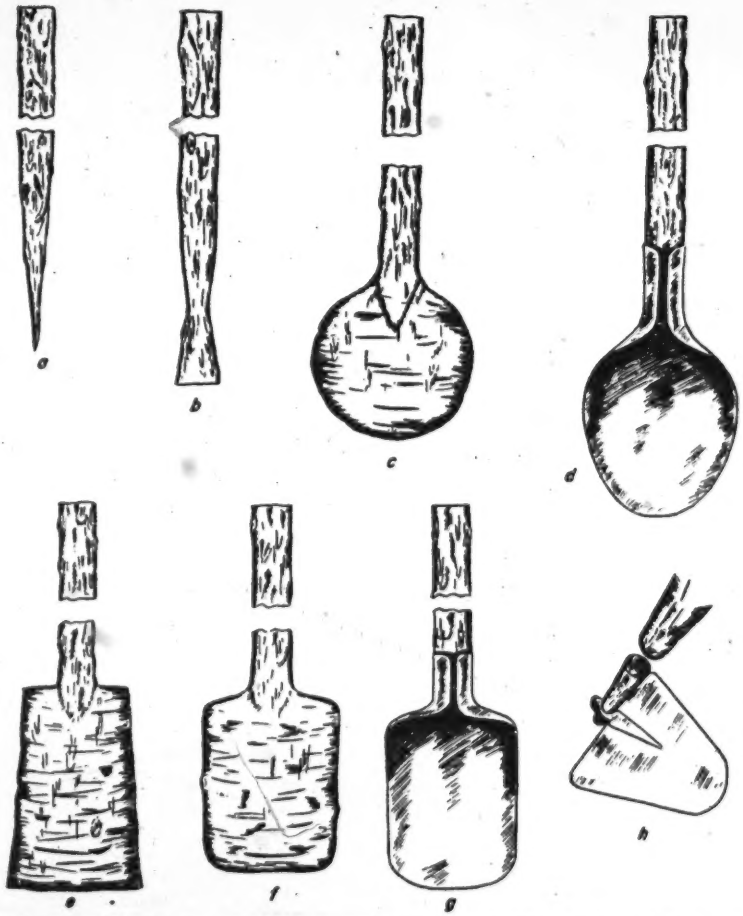

FIGURE 3.—Tarascan planting tools. *a–d*, Meúántatírakuecha, or instruments for replanting maize. *a* and *b* are probably the ancient forms of the planting stick. *c* and *d* may have been derived from the triangular axe; the round form is also used in the Tarascan paddle, Lake Pátzcuaro. *d* is also called tuúfuakua, or instrument for making charcoal; it is often used to break open the kiln after the wood has been reduced to carbon. *e–h*, T'ekaʒákuecha or tarákuecha, sometimes used to plant maize. *e*, Pasaʒitírakua, instrument for flattening or patting, is more frequently employed to pat down mud and clay on the exterior of the charcoal kiln than to plant maize. *h*, Ordinary form of Tarascan metal hoe, or t'ekʒákua. *a–e*, about ⅓ natural size; *f–h*, approximately ¼.

4: West K-5 (1946) 1948 NU34 Tarasco NU34
ΣP 38-aJ Sierra

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tárakua,[59] are employed chiefly to replant maize which failed to germinate or was killed by frost. The most common form is a pointed, fire-hardened stick of oak or *otate*.[60] Occasionally the stick is tipped with a chisel-shaped iron piece. A less common type of planting stick, which carries a round wooden blade, 6 to 8 inches in diameter, is reminiscent of the ancient *coa*, from which it is probably derived. The blade and handle are ordinarily of oak and of one piece. In Capacuaro a meiántatárakua with a round metal blade attached to a wooden handle was seen.[61] Another wooden instrument, called *pala* or te'kɨ́ɬʌkua (sometimes simply tarákua), is used in the Sierra to plant maize in the house-lot gardens. The blade, carved of oak, is flat with an outline of the modern spade. In the wet lands of the Zacapu Basin Tarascans use this implement to plant maize in the fields.[62] There, blades purely of wood, of wood edged with metal, and wholly of metal were observed.

On the steep slopes and in small patches of soil within lava flows, where the plow is useless, the Tarascans have retained their ancient ways of soil preparation and planting. The hillside fields in the Sierra (*desmontes*) are cleared by cutting underbrush and small saplings with the *judo*, the larger trees with the ax (*hacha*), customarily during December and January. Girdling was not observed. In March the dried brush is burned, the wood ash serving as a much needed fertilizer for the leached yellow-brown soils (pl. 5). Such plots are usually productive for three to five consecutive plantings; thereafter they are abandoned for several years. A type of shifting agriculture is thus practiced on the steeply sloping lands. The small fertile plots within the lava flows, however, are permanent fields. Small permanent maize fields (*cachitos*, uaɬɨi) also occur on lower slopes near the shore of Lake Pátzcuaro. Soil retaining walls at the lower edges of such fields give them

[59] Literally, instrument for replanting maize. The word "tárakua," meaning implement, or apparatus, forms the root of many Tarascan terms for various instruments used in the native economy.

[60] *Otate* is a bamboo with tough, woody stalks.

[61] According to a native of Capacuaro, the present distribution of the round-bladed planting stick includes the towns of Capacuaro, San Lorenzo, Paracho, Quinceo, Arantepacua, Turicuaro, Cumachiras, and (before the volcano) San Juan Parangaricutiro, all located in the southeastern portion of the Sierra near the approaches to the *tierra caliente*. (Information supplied by Sr. Pablo Velásquez G.)

[62] The planter, following the plow, sinks the spade into the bottom of the furrow approximately 8 inches, shoves the instrument forward, prying up a section of earth, under which he casts the seed; he then extracts the spade, permitting the earth to fall back on the seed.

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[p. 38-b] Sierra

243 the appearance of terraces.[65] Remnants of pre-Columbian terrace agriculture occur in the vicinity of Chilchota in La Cañada.[66]

412 243 In the small plots described above, the large metal hoe (*azada*, *azadón*, with blade perpendicular to handle) is the principal instrument used to prepare the soil. Although called by the native name (t'ekáɬakua or tarákua) by some Tarascans, [177] the *azadón* is European, having been introduced into Tarascan culture early in the 16th century. The aboriginal t'ekáɬakua (with blade parallel to handle) is no longer used to prepare soil for planting, but, as mentioned above, is still sometimes employed to replant. In pre-Conquest times this instrument (at least in the *tierra caliente*) carried a copper alloy blade (Mus. Nac., leg. 102, Rel. de Cinguacingo, 1581); the tarákua with a triangular iron blade is at present employed by the mountain people in the Balsas drainage of Guerrero (Hendrichs, 1945–46, vol. 1, pp. 31–32).

Planting in the *desmontes* and other small maize plots is performed by opening a small hole with the *azadón*, dropping in the seeds, and covering them with earth by a sweep of the foot. The seed holes are spaced 2 to 3 feet apart, but no attempt is made to form straight rows. Maize is cultivated twice (*escarda* and *segunda*) with the *azadón*.

243 *Maize harvest and storage.*—Three maize products are obtained from the field: roasting ears (*elotes*), fodder (*rastrojo*), and mature ears (*mazorcas*, šanini). Roasting ears come mainly from the special colored corns of the house-lot garden, but many are taken from the fields. In the *humedad* lands of the Sierra *elote* is ready by August in the *temporal* lands, in July.[67] At high elevations (e. g. around the *rancho* of Cherato) the development of *elote* from corn planted in March

[65] These apparent terraces are best developed along the north and west shores of Tzin-k'éri Peninsula.

[66] The following account of the terrace agriculture near Chilchota is given in the Relación Geográfica for that town (1579):

"... *por ser muy pedregoso y de malpais las piedras estan puestas a manera como gradas dexando entre grada y grada con una vara de medir de ancho limpio donde plantaban el maiz, y es esto tanto y hecho por tal orden que parece cosa que pone espanto*" (Mus. Nac., leg. 102, f. 89v).

[67] In some Tarascan towns a minor celebration occurs when roasting ears begin to mature. The first ears picked in the village are taken through the streets by girls, who invite people to kiss the *elotes*. The ears are then taken to the village church and placed on the altar. Later, when all the fields and house lots are in *elote*, girls make special tamales (uápu) of green corn for friends and the family. The *elote* fiesta is apparently a vestige of a significant aboriginal harvest rite. Other minor festivals occur on the first day of the fall-corn or spring-wheat harvests, but they are usually family days and consist mainly of a "*comida*," or drinking spree. Often special foods—tamales, eu tpu (meat stew)—are prepared. There are no religious rites involved in the latter fiestas. [196]

4: West K-5 (1946) 1948 NU34 Tarasco NU34
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243 December. Being more tolerant of poor soils and frost than either maize or wheat, it is customarily grown on the upper slopes. As it is believed that barley improves the soil, it is frequently rotated with maize. Much barley is sown on the high slopes around Cumachuén and Pichátaro, where yellow-brown soils and a short-growing season prevail. Oats are rarely cultivated; small fields were reported only in Pichátaro and Cumachuén.

244 *Other European field crops.*—Broadbeans, lentils, and chickpeas are cultivated chiefly around Lake Pátzcuaro and in the northern plateau pueblos, where they are often grown with maize. [262] Although small quantities are raised in the Sierra, these crops have little place in the native diet.

HORTICULTURE

The house-lot gardens (ekuárueča).—These have been frequently mentioned above (pl. 7). In contrast to field agriculture, cultivation in the ekuáru is intensive; a large variety of plants (maize, beans, squash, vegetables, and fruits) are raised in each small lot; the soil is replenished by application of refuse from the dwelling and manure from the stable. The ekuáru is cultivated [462] mainly by the women and children of the household; the fields, in contrast, are worked by the men. In the gardens the women, always conservative, have retained the plants that are old in indigenous culture. Moreover, although some of the larger lots are plowed with oxen, most are cultivated with two of the present forms [412] of the tarákua: the wooden *pala* and the metal-bladed *asada*.

The principal garden crop is the *elote* maize, discussed above in connection with corn types. The cultivation of the old beans, such as kokóǵ, small patches of amaranth, and various squashes in the ekuáru, has also been mentioned. The women plant in the garden other indigenous vegetables, such as chayote (apúpu; *Sechium edule*),[88] *tomate* (tóma; *Physalis angulata*), which bears the small green husk-enclosed tomatoes; and, if water is available for irrigation, chiles of various types. The most significant vegetable grown in [262] the Tarascan house gardens, however, is the

[88] The chayote bears annually small squashlike fruits, which are boiled and served with chile. In its third year the plant develops a large tuberous root, which is dug up and boiled (tarásʌ) and is often ground on the metate to a flour, which is served as a gruel (atapú). The plant is reproduced by seed, or rather by planting the entire chayote fruit.

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463 aboriginal and European products and techniques. Most of his modern handicrafts are based on pre-Conquest industries (ceramics; wood products; leathercrafts; metal work in copper; weaving of cotton, agave fiber, stalks of tule). Except in a few pueblos, European techniques are now used in making pottery. In modern woodwork the adz and the lathe are probably European and cabinet work is practiced entirely with Old World techniques. Cattle hide and horse hide have replaced deerskin in leathercrafts, but the tanning techniques used are possibly aboriginal. Although the ancient belt loom is used for most cotton and agave weaving, for weaving wool the European hand loom is employed. Sleeping mats (*petates*) are woven of tule as they were 500 years ago; hat making, on the other hand, is completely European. In regard to metals, European techniques have replaced native methods, and iron has of course been introduced. Spanish friars and master craftsmen of the 16th century did indeed teach Tarascans many new techniques, but in most instances such were applied to long-established native industries.

[412] [281] [286] [325]

palm are tied on one cord, half-hitched to the second one, and then tied back to the first; the loose end of the strip is permitted to hang over the second cord, thus forming a drainage surface similar to thatch (pl. 12). The process is repeated, adding a new row of tied strips to the previous one until the garment (4 ft. long and 3 ft. wide) is completed. Arantepacua *capotes* are marketed as far north as Guanajuato. No mention is made of these raincapes in the colonial sources, nor is there a Tarascan word for the garment. It is not improbable that the *capote* is an introduced trait.

Broommaking.—This is another minor industry now practiced by a few men in Arantepacua. Pimu palm leaves are symmetrically arranged around the end of a finished pine stick and then tied with agave fiber or a braided strip of palm. The result is a common broom found in all parts of central Mexico.

WOODCRAFT

According to the early Spanish chroniclers, the Tarascans were clever craftsmen in wood, and under the instruction of Spanish masters the natives became among the best carpenters in New Spain (La Rea, 1945, p. 20; Escobar, 1924, p. 147). By 1580 Indian carpenters in at least four towns—Pátzcuaro, Necotlán (Undameo), Tiripitío, and Tingüindín—were turning out European-styled tables, chairs, and writing desks, which found ready sale among Spanish colonists in all parts of Michoacán.[180a] At that time lathework was established in Pátzcuaro, and probably before 1540 Tarascans had begun to carve saddle frames for Spanish horsemen (Molotinía, 1903, p. 183). Like other Tarascan industries, woodwork was probably a rudimentary pre-Conquest craft greatly modified and improved by European techniques. However, the present commercial types of Tarascan woodwork—cabinet work, lathe work, and adz work—all appear to have been developed in the 16th century.

Specialized woodwork (apart from lumbering and shake making) was formerly more widespread among Tarascans than at present. At the end of the 18th century wood objects were manufactured in 21 pueblos (AGN Historia, vol. 73), today in only 13 towns. In but eight of the latter is the

[180a] Rel. de Pátzcuaro, 1581 (Martínez, 1939, p. 47); Mus. Nac., leg. 102: Rel. de Chocandirán, Rel. de Necotlán; Rel. de Tiripitío, ms. (in Garcia Library, Univ. of Texas).

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[P. 67-b]

322 industry more than 150 years old; in only five of the present towns do more than 25 percent of the working population engage in woodwork.

Adz work.—This is the simplest of the wood techniques now practiced by Tarascans (and by other Indian groups, as well as by mestizos in many parts of Mexico). Before the Conquest the Indians shaped boats from a single log and carved delicate figures on throwing sticks and tom-toms, possibly using obsidian and copper cutting tools. With the introduction of the [177] European steel adz and gouge early in the 16th century, native wood carving was greatly facilitated. One of the earliest European objects which the Tarascans carved with the adz was the saddle frame (*fuste*), an industry which disappeared 100 years ago. Today wooden spoons 322 and bowls (*bateas*) of softwoods are the principal 438 adz and gouge products, Pamatácuaro and its offspring settlements Sirío and San Benito being the chief producers.[121] These objects are also made in the Tarascan villages of Turícuaro, Cumachuén, Pichátaro, Zirosto (formerly important) and Sevina (where the industry was introduced a few years ago), and in the mestizo towns of Pátzcuaro, Tócuaro, Zirahuén, Uruapan, Quiroga. Spoons and bowls are made from softwoods: *jaboncillo* (šápu), *palo blano* (urápit-úku), and *aile* (pámu). Occasionally *bateas* are made of pine. Tools include the common adz and variously shaped gouges, which are driven with a [412] wooden mallet (pl. 13). The products of Pamatácuaro and surrounding settlements are marketed in all parts of Michoacán and sometimes are taken as far as Guadalajara and Mexico City.

Lathe work.—This represents one of the most characteristic forms of modern Tarascan woodcraft, Paracho being the center of the *torneros*. Formerly the simple bow lathe was employed to make bowls, vases, candlesticks, chocolate beaters (*molinillos*), chessman, toys (tops, yoyos), darning eggs, etc. (See Beals, 1946, p. 43, for illustration of bow lathe.) Since 1942, however, when a power line was constructed near the town, most of the bows have been replaced by electrically powered lathes. About six *torneros* in Paracho and five in neighboring Ahuíran still use the bow. Formerly turned objects, chiefly rosaries, choco-

[121] It is doubtful that wooden bateas were carved before the Spanish Conquest. Gourds of *Crescentia alata* probably functioned for the modern bateas. The "bateas" employed in early Spanish gold placering in the *tierra caliente* were likely fashioned from *Crescentia* gourds.

325 old smiths, who work at their trade only part time, represented the remnant of a once thriving home industry.

[439] The former source of metal for the San Felipe smiths is problematical. According to a local informant, during the 1880's *"planchas de hierro"* were brought in from Cotija, a muleteer and trade center having close connections with the *tierra caliente* and the Sierra of Guerrero. This information points to Coalcomán in the Sierra Madre del Sur of Guerrero as the principal source of iron. Other ironworking towns of Michoacán include Irimbo and Nahuatzen. Mestizos in the latter pueblo fashion knives and machetes.

STONECUTTING

324 Stonework among modern Tarascans is limited to approximately 12 metate makers in Turícuaro.
[438] Formerly this village was noted throughout Michoacán for the high-quality *metates* (iauári), *manos* (poɪékua), and *molcajetes* (šúmatakua) carved from a fine-grained andesite (ɬakápu amákiti, or "good stone"), found near the summit of the composite volcano Kanákuaráni (Cerro de la Corona) nearby. Since the introduction (ca.
[256] 1925) of the engine-powered nixtamal mills in mestizo and larger indigenous towns, demand for new *metates* has sharply declined.[161]

Metates and *molcajetes* are roughly shaped at the quarry on Kanákuaráni and are carried down to the pueblo on burro for finishing in the stonecutter's house. Stone is worked with steel tools,
[412] e. g. the pick (píkua) and sledge hammer (píkua-k'éri), and is finished with a polishing stone (janámu). Several sizes of *metates* are made and sold to traveling merchants who pass through the town.

TRADE AND TRANSPORT

438 The structure of trade among the Tarascans is
441 not dissimilar to that of most Indian groups of central Mexico. Although every settlement has at least one store where general merchandise can be purchased, most trading is done at the *tianguis*, or market, held regularly in the larger towns. Throughout the area professional traders—*huacaleros* (who carry merchandise on their backs), *arrieros* (who haul products on the backs of burros), and lately, wholesale buyers from the

[161] According to local informants, in 1912 practically every family in the village made metates. Since that time most of the villagers have turned to woodwork (mainly bateas).

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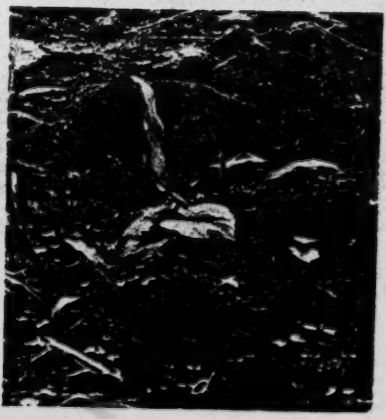
[412]



[343]

PLATE 5.—Maize culture. *a*, The Egyptian plow, still widely used in Mexico (Foster). Note straight steel tip (sole) which slips over cuticles of plow poke and good many coal of manure; leather strap used to fasten yoke to horns of oxen. *b*, Planting maize near Chihuahua. The first plow, followed by two small boys, who drop seeds at regular intervals. The second plow covers the seeds. *c*, Cossacs' plowing near Cuernavaca. Field of young maize. *d*, Hill of maize and beans in late bud near Chihuahua. Plants are about 1 week old. *e*, Newly burned domestic near Ajo. Note wood ash, which will be mixed with underlying soil. *f*, Platform on which maize fodder (zacate) is stored. Foster.

[End-plate 5]

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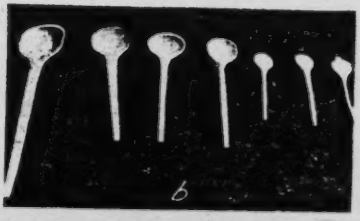

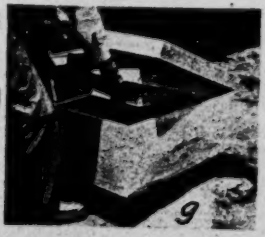

PLATE 12.—Woodwork. a, Gouging tools, Pamatácuaro. b, Wooden spoons and ladles, Pamatácuaro. c, Modern electrically powered lathe shop, Paracho. d, Turned objects made at Paracho. e, Cabinetmaker's shop in house lot, Cocucho. f, Making woodwind with the bow lathe, Paracho. g, Nest of wooden boxes, Cocucho. h, Small (3 feet high) folding chair commonly made in Cocucho. i, Mortar made at Sirio.

[End-plate 13]